

AGC Weekly News

The weekly newsletter of the Auckland Gliding Club at Drury, Auckland

From the CFI



The forecast for tonight and Sunday morning are not looking good so I suspect flying this weekend at Drury will be a no-go.

The long range for next weekend does look OK for the Kiamai's, but who knows that far ahead.

I'll be away from next Wednesday until the 18th but Roy will be around from the weekend should there be any major dramas that need sorting. I'll still be contactable in any case.

The instructors training at Matamata has been running this week with one actual flying day and a reasonable amount of simulator work. Better flying on the ridge is expected tomorrow.

Some pictures from the Matamata training course are included below.

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Understanding how thermals form and evolve is crucial for any soaring pilot aiming to extend their flight, navigate cross-country, or enjoy the purest form of flying.



Photo by Sean Franke

Thermal development is a fundamental concept in the soaring world that we must all grasp. It's the energy in the atmosphere that we use to stay aloft. Understanding how thermals form and evolve is crucial for any soaring pilot aiming to extend their flight, navigate cross-country, or enjoy the purest form of flying.

What is a Thermal?

A thermal is a column of rising air created by the sun's uneven heating of the Earth's surface. As the sun's rays strike the ground, different surfaces—such as forests, fields, and roads—heat up at different rates. The air above these warmer areas becomes lighter and rises, forming a thermal. Thermals are the invisible highways of the sky that we, as soaring pilots, use to gain altitude, stay airborne, and soar great distances at sometimes hard-to-believe speeds.

The Lifecycle of a Thermal

Thermals typically begin forming in the late morning as the sun's energy starts to heat the ground sufficiently. Early in the day, the thermals are usually weak and disorganised. They are closely spaced together, making them challenging to use effectively but satisfying when you master the early start. However, as the day progresses and the sun's heating intensifies, thermals become stronger and more consistent, peaking in strength in the mid-afternoon.

A thermal starts as a small bubble of warm air near the ground, often triggered by wind breaking over a tree line, a farmer ploughing their field, or cattle being spooked. As it rises, it gathers more warm air, growing in size and strength. Pilots can often detect thermals by the presence of cumulus clouds, which form when the rising warm air cools and condenses into water vapour. Clouds are

excellent visual indicators of where thermals are likely to be found.

As a thermal rises, it eventually cools and loses its buoyancy, typically at the top of the convective boundary layer, where the rising air reaches a temperature equilibrium with its surroundings. This is where the thermal begins to dissipate, often marked by the cloud tops flattening. Usually, the best thermals are found under the flattest & blackest part of the cloud. By late afternoon or early evening, as the sun's angle decreases and the ground cools, thermals weaken and eventually disappear, ending the soaring day.

Finding and Using Thermals

For soaring pilots, locating and efficiently using thermals is a skill honed through experience and understanding of the environment. Pilots often look for visual clues such as cumulus clouds, dust devils (see photo above), or even the behaviour of birds such as hawks and vultures, which also use thermals to gain altitude. It's important to learn which birds are the strong climbers and who are social soaring birds and don't care about their climb rate!

The best thermals are typically found over areas that heat up quickly, such as plowed fields, asphalt roads, or rocky outcrops. We pilots must also consider the wind, which can tilt thermals, making them lean in the direction of the wind flow. This means that a pilot may need to search upwind of a thermal trigger point to find the rising air and downwind at other times—this is where experience comes in!

Once a thermal is located, we circle to stay within this column of rising air. The challenge is maintaining a tight enough turn to remain in the thermal core, where the lift is strongest, without

stalling or losing altitude. This requires precise control and constant adjustment as the thermal is not static; it can shift, change shape, or merge with other thermals.

Challenges and Risks

While thermals are a soaring pilot's best friend, they also present challenges and risks. Turbulence at the edges of a thermal can be severe, especially on windy days, and can lead to a sudden loss of control if not managed carefully. Additionally, thermals are not uniform; they can vary in strength, size, and consistency, requiring pilots to adapt their flying techniques constantly.

Thermal development is the lifeblood of soaring. A pilot's ability to read the sky, understand the conditions, and skillfully use thermals separates a good flight from a great one. Mastering thermals extends flight duration and opens up the possibility of long-distance cross-country flights, making the sky indeed a playground for the skilled and adventurous.

Enjoy the journey 🙏



Adam Woolley was born into the gliding world, being the 3rd generation in his family. Going solo at 15, his thirst for efficiency in soaring flight & quest for a world championship title to his name has never wavered. One big passion is sharing his experiences & joy with other glider pilots all around the world. Adam is an airline pilot in Japan on the B767 & spends his off time chasing summer around the globe. He has now won 7 national Championships & represented Australia at 5 WGC's & 1 EGC.

Members Ads



Grob 109 Motor glider for sale

Grob 109 (ZK-GOC) is available for sale at Drury.

GOC has been progressively refurbished over the past 12 years by Ian Williams and has had its comprehensive 3000 hr inspection completed by Sailplane Services. It is in very tidy condition. Will be available with a new Annuals and ARA.

Features:

- Upgraded engine (L2400 Limbach) NZCAA STC approved
- New Hoffmann 3 position propellor
- ADSB out installed

Will cruise at 95 Kts. Using around 15L per hr. 26:1 with prop feathered. Excellent for early glider instruction, paddock selection instruction etc. - no towplane or winch needed. Good stock of Limbach engine spares in New Zealand.

Price \$62,000 (or reasonable offer)

Contact **Ian Williams** for more information or a trial flight. ian@agcon.co.nz Mobile 021 980 194

This edition of the newsletter was compiled by Peter Wooley